

III. REMARKS

I. EXAMINER INTERVIEW

Applicants are grateful for the courtesy of an interview granted by the primary Examiner, Ms. Yvonne R. Abbott, with the Applicants' representatives, Mr. Stanislaus Aksman, and Mr. Laba Karki on October 7 at the U. S. Patent and Trademark Office to discuss the prior art and the outstanding rejections.

At the interview, Applicants' discussion mainly focused on the distinctions between Applicants' claimed invention and the prior art reference of Gompper *et al.*, U.S. Patent Application Publication US2002/0148408 A1 ("Gompper") (discussed *infra*) and how the language in at least some of Applicants' claims may be amended to convey the distinguishing and dynamic features of Applicants' claimed invention more explicitly.

In particular, Applicants pointed out that the following features of their claimed invention were not taught or suggested by Gompper

- dynamic mode of analysis
- analysis of an individual member of a herd of animals
- analysis at pre-selected points in time or at pre-selected time intervals of lactation and reproduction cycles
- system responds to previous measurements in stored data and determines subsequent sampling for analysis.

In response to arguments and discussion, the Examiner tentatively acknowledged these patentable distinguishing features over Gompper and advised Applicants to amend claim 1 to emphasize these features more explicitly. Applicants tentatively proposed an amendment of claim 1, part (d)(ii) thereof, to recite in pertinent part, that: said directing means is controlled in response to at least one change for at least one parameter in at least one individual herd member recorded by the means for storing data for the physiological and nutritional state of each individual herd member relative to historical data in said means for storing data for said individual herd member such that the directing mean is only activated at pre-selected points in time or at pre-selected time

intervals in the reproduction or lactation cycles...¹ Based on the substance of the arguments and the Examiner's tentative review of the proposed amendment to the independent claim 1, the Examiner indicated that claim 1 would be allowable. The Examiner also agreed that if the independent claims are allowed, the dependent claims would be allowable.

II. CORRECTED DRAWINGS

Applicants appreciate the indication in the Office Action that the proposed drawings corrections were approved. Applicants enclose herewith formal drawings, incorporating the corrections.

III. OBJECTIONS OF CLAIMS ARE OVERCOME

Claims 19, 20, 49, 66, 91, 97, 103, 109 and 110 were objected to primarily because of minor misspellings and informalities. Applicants appreciate the Examiner pointing out such misspellings and informalities and they have corrected them. The relatively minor amendments of the claims necessary to correct such informalities and misspellings overcome all claim objections, and they are not made for purposes relating to patentability of Applicants' claims.

IV. CLAIMS 8 AND 56, AS FILED, WERE DEFINITE AND THE AMENDED CLAIMS CONTINUE TO SATISFY THE REQUIREMENTS OF 35 U.S.C. §112, SECOND PARAGRAPH

Applicants submit that their claims, as originally filed, satisfied all the requirements of 35 U.S.C. §112, second paragraph, in spite of contrary assertions in the Office Action. In the Office Action it was stated that claims 8 and 56 recited the limitation "the means for storing a milk sample" but it was alleged that claims 1-3 and 49 made no mention of means for storing a milk sample. See Office Action, page 3. It was asserted that there was insufficient antecedent basis for this limitation in these claims. Applicants respectfully point that out that the antecedent basis for this limitation is found

¹ The proposed amendments are paraphrased, rather than quoted exactly, but the substance of the proposed amendments is the same as discussed at the Interview. The proposed additions are indicated by underscoring.

in claims 6 and 54, from which claims 8 and 56 depend, where the limitation “means for storing a milk sample” is clearly recited. Thus, the original claims 8 and 56 were and continue to be definite as there is a clear antecedent basis in the preceding claims 6 and 54.

V. CLAIM AMENDMENTS

Applicants amended their claim substantially as proposed at the interview, but with an additional modification. Upon further reflection, Applicants’ claim 1 (and claim 91), as amended herein, are also directed to an embodiment of the invention wherein the directing means is controlled in response to a signal from the means for storing data (but not in response to at least one change of at least one parameter in at least one individual herd member). Applicants respectfully submit that they are entitled to patent protection for this embodiment for all the reasons discussed herein. Applicants also added new claims 112, 113 and 114. Support for the claim amendments and new claims is found in the specification, considered as of whole, e.g., at page 5, lines 1-16, page 11, line 33 - page 12, line 9 and page 16, line 29 - page 17, line 9.

VI. REJECTIONS UNDER 35 U.S.C. §102

Claims 1-3, 5, 6, 9, 14, 15, 20, 31, 33-39, 41-44, 48, 91-94, 102, and 105-111 were rejected under 35 U.S.C. § 102 (e) as being anticipated by Gompper.

In reference to claim 1, it was alleged that Gompper disclosed an automated or semi-automated system for optimizing the production performance of a milk producing animal herd comprising a plurality of herd members each assigned a unique ID code recognizable by the system (paragraph [0056]) comprising: means for collecting a milk sample connectable to a herd milking system (figure 1, paragraph [0054]); means for recognizing the identification codes (paragraph [0056]); means for storing data for a physiological and nutritional state of each herd member (paragraph [0076]); means for analyzing a plurality of compounds or parameters in a sample, including separate means for analyzing individual compounds or parameters and for generating a detectable signal in the presence of a compound or parameter (paragraphs [0037] and [0057]); means for directing a part of the milk sample to the separate analyzing means (figure 1, where the interconnected parts direct milk samples to analyzing means;

paragraph [0037], describing a plurality of separate analyzing means that can be present in the system); the directing means controlled by data storing means such that the directing means is activated at pre-selected points in time or pre-selected time intervals in the reproduction or lactation cycles (paragraphs [0034], [0039], [0042], [0056], [0059]); and means for detecting signals, converting the signals to a set of data about physiological and nutritional condition, and outputting data (paragraphs [0070-0074]). See Office Action, page 4.

Applicants respectfully traverse this rejection on several grounds. Applicants' invention is directed to or system, apparatus and method for optimizing the production performance of a milk producing animal herd. The claimed invention includes a dynamic mode of analysis with a separate analyzing means to analyze a plurality of parameters indicative of the physiological state, a nutritional state or a combination thereof of each herd member. The analysis is conducted on a portion of a milk sample from an individual member of the herd by directing a part of the milk sample to each separate analyzing means. The means for directing the portion of the sample is controlled in response to at least one change for at least one parameter, in at least one herd member (recorded by the means for storing data for the physiological and/or nutritional state) relative to the data recorded for that herd member in the system. The means for directing the portion of the milk sample may also be controlled by a signal from the means for storing data, so that the directing means is only activated at pre-selected points in time or time intervals in the reproduction or lactation cycles. *See, e.g.*, Claims 1 and 91. The analysis may also be conducted on the milk sample. *See, e.g.*, claim 49.

The method also includes the taking of appropriate steps to improve or correct the physiological and/or the nutritional condition of any of the herd members which need the improvement or correction. *See, e.g.*, claim 49.

Thus, Applicants' invention includes a selective analysis in that the method is designed in such a way that an individual milk sample collected at a given point in time is only analyzed for compounds or parameters that need to be analyzed for a particular herd member. For example, the analysis can be performed at pre-selected points in time or at pre-selected time intervals in the reproduction or lactation cycles. Further,

Applicants' system differs from Gompper's disclosure insofar that it may respond to the previous measurements in stored data and determines the next specific point in time for conducting a subsequent analysis. Thus, the Applicants' system, apparatus and method is an "intelligent" invention that provides a significant reduction in costs of analyzing milk samples due to the avoidance or the reduction of superfluous analysis and enables the overall optimization of the production performance of a milk producing animal herd.

Conversely, Gompper teaches a semi-automated computer implemented milk monitor, including a milk sensor, an activity-based controller coupled to the milk sensor to receive signals from the milk sensor and to deliver a milk facility control parameter to a milk facility interface, wherein the activity-based controller may comprise a fuzzy logic processor. The milk facility interface may be a milker detacher which is also controlled by the milk facility parameters. See paragraphs [0031] and [0033].

In contrast to the problem solved by the Applicants' invention, Gompper solves a different problem, i.e., varying the milk time of a group of cows in response to various parameters such as cow feed data, weather data, milking frequency, time of day, lactation cycle and breeding cycle data for individual cows. See Gompper, paragraphs [0042] and [0059]. Gompper is concerned mainly with the length of the milking time and optimizing the milking conditions wherein the milking is controlled by various milk sensors coupled to an activity-based controller comprising a fuzzy logic processor that in turn controls a milk detacher. Thus, the numerous parameters affecting milk yield and herd health obtained from milk sensors are archived into an activity based controller. This information in turn can provide instructions for controlling a milk detacher, *i.e.* the length of the milking time. *E.g.*, see paragraphs [0056] and [0059]. Alternatively, if Gompper's system detects a health issue in a cow, the cow is separated from the herd, and she is not milked at all. *E.g.*, see paragraph [0074]. Gompper does not provide an analysis system for analysing various parameters of milk for each herd member at pre-selected time intervals. For example, Gompper does not teach a means for directing a part of a milk sample to separate analysis means that is in turn controlled by the stored data and is activated at pre-selected time intervals such as lactation or reproduction cycles of a specific points in time. It was stated in the Office Action that

Figure 1 of Gompper shows interconnected parts to direct milk samples to analyzing means. See Office Action, page 4. Applicants submit that the “interconnected parts” designate the vacuum lines which cause the entire milk production from each cow to be transferred to Gompper’s system and this entire milk production is sent to a milk sensor 22. See Fig. 1 and paragraph [0054].

The Federal Circuit has held that “A claim is anticipated only if each and every element as set forth in the claim is found either expressly or inherently in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F. 2d, 628 (Fed. Cir. 1987). Further, “the identical invention must be shown in as complete detail as is contained in the claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d, 1226 (Fed. Cir. 1987). Therefore, at least in view of the distinctions discussed above between the features of Gompper and the features in Applicants’ independent claims 1 and 91, claims 1 and 91 are not anticipated by Gompper and are allowable.

As discussed *supra*, at the interview the Examiner agreed that if the independent claims are allowable, then all the dependent claims would also be allowed. Thus, the dependent claims 2-3, 5, 6, 9, 14, 15, 20, 31, 33-39, 41-44, 48, 92-94, 102 and 105-111 are also allowable.

V. REJECTIONS UNDER 35 U.S.C. §103

Claims 4, 7, 8, 12, 24-29, 49-60, 66, 70-74, 79-82, 84-87, 96, 98-101, and 104 were rejected under 35 U.S.C. §103 over Gompper in view of U.S. patent No. 5,743,209 to Bazin *et al.* (“Bazin”). Applicants respectfully traverse this rejection.

Applicants respectfully submit that the “initial burden of establishing a basis for denying patentability to a claimed invention rests upon the USPTO.” (*In re Fine*, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988)). As stated by the Federal Circuit, “a proper analysis under 35 U.S.C. § 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success.” *In re Vaeck*, 947 F.2d

488, 493 (Fed. Cir. 1991). In addition, the prior art reference(s) must teach or suggest all of the claim limitations. The teaching or suggestion to combine and the reasonable expectation of success must both be found in the prior art, and not in Applicant's disclosure. *Id.* at 493. *See also* M.P.E.P. § 2142. The Federal Circuit recently explained that "...the best defense against the subtle but powerful attraction of hindsight - based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." (*In re Lee*, 61 U.S.P.Q. 2d 1430, 1433 (Fed. Cir. 2002), quoting from *In re Dembiczak*, 50 U.S.P.Q. 2d 1614, 1617 (Fed. Cir. 1999)).

Applicants respectfully submit that neither Gompper nor Bazin provide the requisite motivation to combine the two disclosures. There is simply nothing in these two references that would suggest such a combination and the presence of such a suggestion in these references was not identified in the Office Action. For at least this reason, the combination of the two references would have failed to establish a *prima facie* case of obviousness of claim 49.

Absent a motivation to modify the reference, the Applicants' claimed invention cannot be held to be obvious. MPEP § 2143.01. "The mere fact that the references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1998). Thus, independent claim 49 and all the claims dependent from it are patentable.

Further, the following dependent claims were rejected as unpatentable under 35 U.S.C. §103 in view of Gompper alone and/or in combination with other patents and publications. The rejections are summarized below.

Claims 10, 11, 32, and 103 were rejected over Gompper. See Office Action, page 7. Claim 13 was rejected over Gompper in view of US patent No. 5, 873, 323 to Van den Berg *et al.* ("Van den Berg"). Claims 16-19 were rejected over Gompper in view of Van den Berg, U.S. patent No. 4, 385, 590 to Mortensen, International Patent WO 99/18774 to Postma *et al.* ("Postma") and "Automatic monitoring of the health and metabolic status of dairy cows" by Mottram ("Mottram"). See Office Action, page 11.

Claims 21-23, 45-47 and 95 were rejected over Gompper in view of Swedish Patent No. 9902972 to Bjork *et al.* ("Bjork"). See Office Action, page 12. Claim 30 was rejected over Gompper in view of Bazin, Van den Berg, Mortensen, Postma, Mottram and Bjork. See Office Action, page 13. Claim 40 was rejected over Gompper in view of US patent No. 6,311,644 to Pugh. See Office Action, page 13. Claims 61 and 62 were rejected over Gompper in view of Bazin as applied to claims 49 and 54, and further in view of Van den Berg. Claims 63-65 and 75-78 were rejected over Gompper in view of Bazin as applied to claim 49 above, and further in view of Mottram. See Office Action, page 14. Claims 67-69, 88-90 and 97 were rejected over Gompper in view of Bazin as applied to claims 49 and 66 above, and further in view of Bjork. See Office Action, page 14. Claim 83 was rejected over Gompper in view of Bazin as applied to claims 82 above, and further in view of Pugh. See Office Action, page 15.

Applicants respectfully traverse this rejection under §103 at least because the independent claims 1, 49 and 91 are patentable over the primary reference of Gompper and/or in combination with the above cited secondary references. During the Examiner interview on October 7, 2003, the Examiner agreed that if the independent claims were patentable, then all the dependent claims would also be allowed. Thus, in view of the patentable distinguishing features that render the independent claims allowable, the dependent claims are also patentable.

Nevertheless, Applicants would like to briefly discuss the references relied upon in the Office Action for the §103 rejections and explain why at least some of these secondary references do not defeat patentability of at least some of Applicants' claims. For example, Bazin discloses an automated system for controlling quantity and quality of milk production. The system comprises a means for recognizing a herd member, means for collecting a milk sample from the herd member, means for analyzing a plurality of parameters in the sample, means for generating a detectable signal, means for detecting the generated signal and means for storing data connected to the particular herd member. However, Bazin does not disclose an intelligent system capable of determining the pre-selected point in time or pre-selected time intervals for performing an analysis. Bazin also fails to suggest determination of the pre-selected point in time or pre-selected time interval based on the detection of at least one change

in a compound or parameter for a member of an animal herd, which indicates an abnormality in the physiological or nutritional state of the member of the herd. *E.g.*, see claims 107-110.

Likewise, Van den Berg discloses a milking system comprising means for directing milk samples to analyzing means at the time beginning when a teat cup is connected to a teat and ending when the flow of milk from this teat starts, also called the dead time (column 3, lines 35-37) and corresponds to a predetermined historical value for the particular animal. The dead time is used as an indicator of whether the animal is in estrous or ill (column 4, lines 1-14). Thus, the predetermined historical value is used only as a reference value for determining the physiological state of the animal and not for determining the point in time for performing a subsequent analysis.

Applicants submit that the remaining secondary references fail to suggest a solution of the problem which is addressed by Applicants' invention. A person having ordinary skill in the art would not have found obvious Applicants' claimed invention from the teachings of any of the cited documents or any combinations thereof without the benefit of hindsight provided by Applicants' specification. The use of hindsight in unobviousness analysis is improper as a matter of law.

Therefore, the claimed invention is patentable in view of the cited documents under the requirements of 35 U.S.C. §103 for all the reasons set forth above.

VI. REQUEST FOR ALLOWANCE

It is submitted that all claims are in condition for allowance, an indication of which is solicited. In the event that any issues remain outstanding, Applicants would appreciate the courtesy of a telephone call to the undersigned counsel to resolve such issues in an expeditious manner and place the application in condition for allowance.

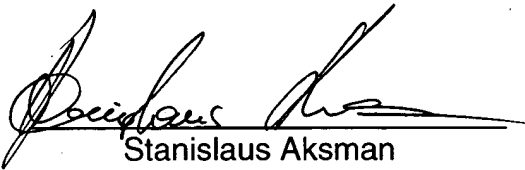
In the event that any additional fees are necessary, the Commissioner is hereby authorized to charge our Deposit Account No. 50-0206.

Respectfully submitted,

HUNTON & WILLIAMS

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